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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/686,841	10/16/2003	Robert W. Lamberton	169.12-0613	8492
164	7590	02/02/2006	EXAMINER	
KINNEY & LANGE, P.A. THE KINNEY & LANGE BUILDING 312 SOUTH THIRD STREET MINNEAPOLIS, MN 55415-1002			BERNATZ, KEVIN M	
			ART UNIT	PAPER NUMBER
			1773	

DATE MAILED: 02/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/686,841

Applicant(s)

LAMBERTON ET AL.

Examiner

Kevin M. Bernatz

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 and 3-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

## **DETAILED ACTION**

### ***Response to Amendment***

1. Amendments to claims 1, 3, 4, 7, 8, 14, 20 and 21 and cancellation of claim 2, filed on November 21, 2005, have been entered in the above-identified application.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

### ***Examiner's Comments***

3. The Examiner notes that the limitation "and having a magnetic saturation moment of greater than 2.4 T" in claims 1 and 14 is directed to the *layer*, not the "first magnetic material" or "second magnetic material". The Examiner suggests amending the claims to better clarify that the 2.4 T limitation applies to the layer of nanophase magnetic material.

### ***Request for Continued Examination***

4. The Request for Continued Examination (RCE) under 37 CFR 1.53 (d) filed on November 21, 2005 is acceptable and a RCE has been established. An action on the RCE follows.

***Claim Rejections - 35 USC § 102***

5. Claims 1 and 3 – 23 are rejected under 35 U.S.C. 102(b) as being anticipated by Yoshikawa et al. (U.S. Patent No. 6,132,892) as evidenced by Ando et al. (U.S. Patent No. 6,802,753 B1) and Kong et al. (Mag. Conf., 2002, INTERMAG Europe 2002, Digest Papers).

Regarding claim 1, Yoshikawa et al. disclose a magnetic element comprising at least one layer of a magnetic material incorporating a first magnetic material surrounded by a second magnetic material, wherein the layer of magnetic material having a high magnetic saturation moment (*Figure 1A and col. 7, line 29 bridging col. 10, line 35*).

While Yoshikawa et al. does not explicitly disclose an embodiment having a magnetic saturation moment greater than 2.4 T, the Examiner notes that Yoshikawa et al. clearly teach the desire for maximizing the magnetic saturation moment as well as embodiments having a value of 2.4 T (*Table 5, example 3*). As such, the Examiner deems there is sufficient specificity that the disclosed property limitation is disclosed by Yoshikawa et al. even though an explicitly embodiment meeting the claimed limitation is not present.

Regarding the limitation “nanocluster”, “incorporating nanoclusters” and “containing approximately 200 to 300 atoms per nanocluster”, these limitations are treated as addressed in Paragraph 10 of the Office action mailed August 22, 2005.

In the instant case, the Examiner notes that Yoshikawa et al. disclose crystal grains having a diameter of 50 nm or less (*col. 7, lines 62 – 65*), which falls within the range that one of ordinary skill in the art would recognize as a “nanocluster” material (as

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evidenced by Ando et al., col. 46, lines 30 – 58). Furthermore, the Examiner notes that the number of atoms is directly related to the grain size (more atoms = larger grain) and Ando et al. provides evidence that the number of atoms in the grains disclosed by Yoshikawa et al. overlaps applicants' claimed number of atoms.

Therefore, in addition to the above disclosed limitations, the presently claimed properties of "nanoclusters" and "containing approximately 200 to 800 atoms" would have inherently been present in the Yoshikawa et al. invention because the prior art products possess a substantially identical structure and, most importantly, grain size.

Claims 3 – 23 are disclosed as described in Paragraph 10 of the Office Action mailed August 22, 2005. For clarity regarding claim 14, the Examiner notes that Yoshikawa et al. disclose a magnetic write element (*Figure 10*) having a write gap (*element 30*), the element comprising a bottom pole (*element 27*), a first magnetic layer located upon the bottom pole (*element 33 adjacent element 27*) at the write gap, wherein the first magnetic layer includes the disclosed Yoshikawa et al. alloy (*col. 16, lines 20 – 21*) and a second magnetic layer (*element 33 adjacent element 34*) adjacent to the write gap opposite to the first magnetic layer (*where the Examiner notes that element 35 is an optional layer - col. 16, lines 31 - 36*), wherein the second magnetic layer includes the disclosed Yoshikawa et al. alloy (*col. 16, lines 20 – 21*), and a third magnetic layer plated upon the second magnetic layer thereby forming a top pole (*element 34*).

***Claim Rejections - 35 USC § 103***

6. Claims 1 and 3 – 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshikawa et al. as applied above, and further in view of Sun et al. (IEEE Trans. Mag., 36(5), 2000, 2506 – 2508) and Rawlings et al. (U.S. Patent No. 4,933,026), as evidenced by Ando et al. ('753 B1) and Kong et al. (Mag. Conf., 2002, INTERMAG Europe 2002, Digest Papers).

Yoshikawa et al. is relied upon as described above.

While the Examiner maintains that Yoshikawa et al. provides sufficient specificity for the claimed magnetic saturation moment, the Examiner notes that Sun et al. (*entire disclosure*) and Rawlings et al. (*entire disclosure*) provide explicitly guidance to one of ordinary skill in the art to optimize the elemental compositions to produce alloys reading on the claimed property limitations, as well as being within the disclosed scope of the Yoshikawa et al. invention (*especially in view of the teaching regarding adding N, Nb or Ta to the alloys of Yoshikawa et al. – col. 7, lines 3 – 18*).

Furthermore, while the Examiner maintains that Yoshikawa et al. provides sufficient specificity to inherently anticipate the claimed limitation of “nanoclusters” and “containing approximately 200 to 800 atoms”, the Examiner notes that the above limitations would have been obvious to one of ordinary skill in the art since it is within the knowledge of one of ordinary skill that the number of atoms is directly related to the grain size (more atoms = larger grain) and that the grain size (and hence, the number of atoms) directly impacts the soft magnetic properties of the alloy (*Yoshikawa et al., col. 7, line 62 bridging col. 8, line 11*). It would therefore have been obvious to optimize the

grain size, and hence number of atoms, to meet applicants' claimed limitations in order to optimize the soft magnetic properties of the disclosed alloy.

Claims 3 – 23 are disclosed as noted above.

### ***Response to Arguments***

**7. The rejection of claims 1 and 3 - 23 under 35 U.S.C § 102(a) and/or 103(a) – Sun et al., alone or in view of various references**

**8. The rejection of claims 1, 3, 4, 6 – 17 and 19 - 23 under 35 U.S.C § 102(a) and/or 102(e) – Minor et al., including evidentiary references**

The above noted rejection has been withdrawn in view of applicant(s) arguments, which have been found persuasive. Specifically, applicant(s) argue Sun et al. and Minor et al. are directed to thin films while the present claims are directed to nanocluster films (*pages 6 – 7 of response*), which is deemed to not be anticipated, nor rendered obvious, by the above noted rejection.

**9. The rejection of claims 1 and 3 - 23 under 35 U.S.C § 102(b) and/or 103(a) – Yoshikawa et al.**

Applicant(s) argue(s) that Yoshikawa et al. is not a 102(b) reference since the basis of the rejection includes “at least three, and perhaps as many as five references” (*page 7 of response*). The examiner respectfully disagrees.

The Examiner notes that 102/103-type rejections are permissible for cases where there is a sound basis for believing that a limitation is inherently met by a prior art

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reference, but not explicitly disclosed. The Examiner notes that some confusion may have stemmed from a typographical error in the basis of the rejection, so the two rejections have been separated to hopefully provide better clarity. The Examiner notes that Ando et al. and Kong et al. are merely evidentiary "teaching" references cited to support the Examiner's position in the basis of the rejection.

Applicants further argue that the "amendments to claims 1 and 14 make it clear that the structure taught and claimed by Applicant is not shown or suggested by Yoshikawa et al. alone, or in combination with any of the other references" (*page 8 of response*). The Examiner respectfully disagrees.

Applicants have not distinctly pointed out any alleged errors in the rejection or why applicants feel Yoshikawa et al. does not disclose the claimed invention. The Examiner maintains that Yoshikawa et al. disclose the claimed invention for the reasons cited above in Paragraphs 5 and 6.

Finally, applicants argue that the rejection of claim 14 should be withdrawn since none of the cited references disclose a magnetic write element having a first and second magnetic layers that include nanophase magnetic material incorporating the claimed nanoclusters (*page 8 of response*). The Examiner respectfully disagrees.

The Examiner notes that Yoshikawa et al. disclose a magnetic head meeting the claimed limitations as better clarified above.



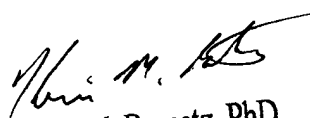
**Conclusion**

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin M Bernatz whose telephone number is (571) 272-1505. The examiner can normally be reached on M-F, 9:00 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on (571) 272-1284. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KMB  
January 31, 2006

  
Kevin M. Bernatz, PhD  
Primary Examiner